

**WHAT IS CLAIMED IS:**

1. A smoking article comprising:

a first component comprising a column  
of a smokable filler;

5 a second component comprising a  
wrapper surrounding the column of the smokable  
filler; and

a carbon monoxide reducing agent  
selected from the group consisting of metal oxides  
10 and metal carbonates, the carbon monoxide reducing  
agent being contained in the first component, the  
second component, or in both components, the carbon  
monoxide reducing agent being present in an amount  
sufficient to reduce carbon monoxide delivery in mg  
15 per smoking article by at least 10%.

2. A smoking article as defined in Claim 1,  
wherein the carbon monoxide reducing agent comprises  
iron oxide.

3. A smoking article as defined in Claim 1,  
20 wherein the carbon monoxide reducing agent comprises  
cobalt oxide, calcium peroxide, palladium oxide,  
platinum oxide, cobalt carbonate or mixtures thereof.

4. A smoking article as defined in Claim 1,  
wherein the carbon monoxide reducing agent has a  
25 median particle size of from about 0.05 microns to  
about 3 microns.

5. A smoking article as defined in Claim 1,  
wherein the carbon monoxide reducing agent is present  
in the first component or the second component in an  
30 amount up to about 40% by weight.

6. A smoking article as defined in Claim 1, wherein the carbon monoxide reducing agent is also present in an amount sufficient to reduce the carbon monoxide to tar ratio of the smoking article by at least about 10%.

7. A smoking article as defined in Claim 1, wherein the smokable filler comprises a tobacco.

8. A smoking article as defined in Claim 1, wherein the column of smokable filler comprises reconstituted tobacco.

9. A smoking article as defined in Claim 1, wherein the wrapper surrounding the column of the smokable filler comprises a sheet of reconstituted tobacco.

10. A smoking article as defined in Claim 1, wherein the carbon monoxide reducing agent comprises ferric oxide.

11. A smoking article as defined in Claim 1, wherein the carbon monoxide reducing agent comprises hydrated ferric oxide.

12. A smoking article as defined in Claim 1, wherein the wrapper comprises an outer layer and an inner layer, the carbon monoxide reducing agent being contained in the inner layer.

13. A smoking article as defined in Claim 1, wherein the carbon monoxide reducing agent is only contained in the first component.

14. A smoking article as defined in Claim 1, wherein the carbon monoxide reducing agent is only contained in the second component.

15. A smoking article as defined in Claim 1, wherein the carbon monoxide reducing agent comprises a Group VIII oxide.

5 16. A smoking article as defined in Claim 1, wherein the smoking article has a carbon monoxide delivery of less than about 15 mg per smoking article.

10 17. A smoking article as defined in Claim 1, wherein the smoking article has a carbon monoxide delivery of less than about 12 mg per smoking article.

15 18. A smoking article as defined in Claim 1, wherein the smoking article has a carbon monoxide delivery of less than about 10 mg per smoking article.

19. A smoking article as defined in Claim 1, wherein the smoking article has a carbon monoxide to tar ratio of less than about 1.0.

20 20. A smoking article as defined in Claim 1, wherein the smoking article has a carbon monoxide to tar ratio of less than about 0.7.

21. A smoking article as defined in Claim 1, wherein the smoking article has a carbon monoxide to tar ratio of less than about 0.5.

25 22. A smoking article as defined in Claim 1, wherein the smoking article further comprises low permeability areas surrounding the column of the smokable filler, the low permeability areas having a permeability within a range sufficient to reduce  
30 ignition proclivity.

23. A smoking article as defined in Claim 1, wherein the smoking article has an average carbon monoxide delivery per puff of less than about 1.7 mg.

5 24. A smoking article as defined in Claim 1, wherein the smoking article has an average carbon monoxide delivery per puff of less than about 1.5 mg.

25. A smoking article as defined in Claim 1, wherein the smoking article has an average carbon monoxide delivery per puff of less than about 1.25 mg.

26. A smoking article as defined in Claim 1, wherein the smoking article has an average carbon monoxide delivery per puff of less than about 1.0 mg.

15 27. A smoking article comprising:  
a first component comprising a column of a smokable filler, the smokable filler comprising a tobacco;

20 a second component comprising a wrapper surrounding the column of the smokable filler; and

a carbon monoxide reducing agent contained in the first component, the second component, or in both components, the carbon monoxide reducing agent comprising an iron oxide, a cobalt oxide, a calcium peroxide, a palladium oxide, a platinum oxide, a cobalt carbonate, or mixtures thereof, the carbon monoxide reducing agent being present in the first component or in the second component in an amount from about 3% by weight to

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about 40% by weight, the smoking article having a carbon monoxide delivery of less than about 15 mg per smoking article and having a carbon monoxide to tar ratio of less than about 1.0.

5           28. A smoking article as defined in Claim 27, wherein the carbon monoxide reducing agent comprises a Group VIII oxide.

10           29. A smoking article as defined in Claim 27, wherein the carbon monoxide reducing agent comprises a ferric oxide.

30. A smoking article as defined in Claim 29, wherein the carbon monoxide reducing agent comprises a hydrated ferric oxide.

*Rink*  
15 <sup>1,120</sup> ~~30~~<sup>31</sup>. A smoking article as defined in Claim 27, wherein the carbon monoxide reducing agent is present in the first component or present in the second component in an amount of at least about 10% by weight.

20 ~~31~~<sup>32</sup>. A smoking article as defined in Claim 27, wherein the smoking article has a carbon monoxide delivery of less than about 12 mg per smoking article.

25 ~~32~~<sup>33</sup>. A smoking article as defined in Claim 27, wherein the smoking article has a carbon monoxide delivery of less than about 10 mg per smoking article.

~~33~~<sup>34</sup>. A smoking article as defined in Claim 27, wherein the smoking article has a carbon monoxide to tar ratio of less than about 0.7.

<sup>35</sup>  
34. A smoking article as defined in Claim 27,  
wherein the smoking article has a carbon monoxide to  
tar ratio of less than about 0.5.

<sup>36</sup>  
35. A smoking article as defined in Claim 27,  
5 wherein the smoking article further comprises low  
permeability areas surrounding the column of the  
smokable filler, the low permeability areas having a  
permeability within a range sufficient to reduce  
ignition proclivity.

<sup>37</sup>  
10 36. A smoking article as defined in Claim 27,  
wherein the wrapper comprises at least an outer layer  
and an inner layer, the carbon monoxide reducing  
agent being contained in the inner layer.

<sup>38</sup>  
15 37. A smoking article as defined in Claim 27,  
wherein the carbon monoxide reducing agent is only  
contained in the first component.

<sup>39</sup>  
38. A smoking article as defined in Claim 27,  
wherein the carbon monoxide reducing agent is only  
contained in the second component.

<sup>40</sup>  
20 39. A smoking article as defined in Claim 27,  
wherein the column of smokable filler comprises  
reconstituted tobacco.

<sup>41</sup>  
25 40. A smoking article as defined in Claim 27,  
wherein the wrapper surrounding the column of the  
smokable filler comprises a sheet of reconstituted  
tobacco..

<sup>42</sup>  
30 41. A smoking article as defined in Claim 27,  
wherein the carbon monoxide reducing agent is  
contained within the wrapper, the wrapper comprising  
pulp fibers, the wrapper having a permeability of

from about 15 Coresta to about 110 Coresta, and a basis weight of from about 18 gsm to about 60 gsm.

<sup>43</sup>  
~~42~~. A smoking article as defined in Claim 41, wherein the wrapper further contains a filler.

5       <sup>44</sup>  
~~43~~. A smoking article as defined in Claim 42, wherein the filler comprises calcium carbonate.

<sup>45</sup>  
~~44~~. A process for reducing carbon monoxide delivery in a smoking article comprising:

incorporating into the smoking article  
10 a carbon monoxide reducing agent, the carbon monoxide reducing agent comprising a Group VIII oxide, a calcium peroxide, a cobalt carbonate, or mixtures thereof, the carbon monoxide reducing agent being present in an amount sufficient to reduce carbon  
15 monoxide delivery in mg per smoking article by at least about 10%, the smoking article having a carbon monoxide delivery of less than about 15 mg per smoking article and having a carbon monoxide to tar ratio of less than about 1.0.

20       <sup>46</sup>  
~~45~~. A process as defined in Claim 44, wherein the smoking article comprises a column of smokable filler and a wrapper surrounding the column, the carbon monoxide reducing agent being contained in the wrapper.

25       <sup>47</sup>  
~~46~~. A process as defined in Claim 44, wherein the smoking article comprises a column of smokable filler and a wrapper surrounding the column, the carbon monoxide reducing agent being contained in the smokable filler.

<sup>44</sup>  
47. A process as defined in Claim 44, wherein the carbon monoxide reducing agent comprises a ferric oxide.

<sup>44</sup>  
48. A smoking article comprising:

5                   a first component comprising a column of a smokable filler, the smokable filler comprising a tobacco;

10                   a second component comprising a wrapper surrounding the column of the smokable filler;

15                   low permeability areas contained within the wrapper at selected locations, the lower permeability areas creating a BMI range within the wrapper sufficient to reduce ignition proclivity by reducing oxygen to a smoldering coal of the smoking article as the coal burns and advances into the lower permeability areas, the wrapper having a BMI of less than about  $8 \text{ cm}^{-1}$  within the lower permeability areas; and

20                   wherein the smoking article has a carbon monoxide delivery of less than about 15 mg per smoking article and has a carbon monoxide to tar ratio of less than about 1.0.

<sup>50</sup>  
25                   49. A smoking article as defined in Claim 48, wherein the smoking article has an average carbon monoxide per puff of less than about 1.75 mg.

<sup>51</sup>  
30                   50. A smoking article as defined in Claim 48, wherein the smoking article has an average carbon monoxide per puff of less than about 1.5 mg.

<sup>52</sup>  
~~51~~. A smoking article as defined in Claim 48,  
wherein the smoking article has an average carbon  
monoxide per puff of less than about 1.25 mg.

<sup>53</sup>  
~~52~~. A smoking article as defined in Claim 48,  
5 wherein the smoking article has a carbon monoxide  
delivery of less than about 12 mg per smoking  
article.

<sup>54</sup>  
~~53~~. A smoking article as defined in Claim 48,  
wherein the smoking article has a carbon monoxide  
10 delivery of less than about 10 mg per smoking  
article.

<sup>55</sup>  
~~54~~. A smoking article as defined in Claim 48,  
wherein the carbon monoxide to tar ratio is less than  
about 0.7.

<sup>56</sup>  
~~55~~. A smoking article as defined in Claim 48,  
15 wherein the carbon monoxide to tar ratio is less than  
about 0.5.

<sup>57</sup>  
~~56~~. A smoking article as defined in Claim 48,  
wherein the smoking article further comprises a  
20 carbon monoxide reducing agent contained within the  
first component, the second component, or in both  
components, the carbon monoxide reducing agent  
comprising a Group VIII oxide, a Group VIII  
carbonate, or mixtures thereof.

<sup>58</sup>  
~~57~~. A smoking article as defined in Claim 56,  
25 wherein the carbon monoxide reducing agent is only  
contained within the wrapper, the carbon monoxide  
reducing agent being present in the wrapper in an  
amount from about 0.3% to about 40% by weight.

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~~58~~. A smoking article as defined in Claim 57,  
 wherein the wrapper comprises a paper layer  
 containing pulp fibers, the paper layer having a  
 permeability of from about 15 Coresta to about 110  
 5 Coresta and a basis weight from about 18 gsm to about  
 60 gsm.

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~~59~~. A smoking article as defined in Claim 57,  
 wherein the wrapper comprises an outer layer and an  
 inner layer, the carbon monoxide reducing agent being  
 10 contained within the inner layer.

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~~60~~. A smoking article as defined in Claim 59,  
 wherein the inner layer comprises reconstituted  
 tobacco.

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~~61~~. A smoking article as defined in Claim 56,  
 15 wherein the carbon monoxide reducing agent is only  
 contained in the first component.

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~~62~~. A smoking article as defined in Claim 61,  
 wherein the smokable filler comprises reconstituted  
 tobacco.

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~~63~~. A smoking article as defined in Claim 56,  
 20 wherein the lower permeability areas comprise bands  
 located on the wrapper.

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~~64~~. A smoking article as defined in Claim 63,  
 wherein the bands are substantially parallel to an  
 25 axis of the smoking article.

66  
~~65~~. A smoking article as defined in Claim 63,  
 wherein the bands are substantially perpendicular to  
 an axis of the smoking article.

67  
66. A smoking article as defined in Claim 48,  
wherein the wrapper has a BMI from about  $1 \text{ cm}^{-1}$  to  
about  $5 \text{ cm}^{-1}$  within the lower permeability areas.

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68. A smoking article as defined in Claim 48,  
5 wherein the lower permeability areas are formed by  
coating the wrapper with a film-forming composition.

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69. A smoking article as defined in Claim 48,  
wherein the lower permeability areas comprise a  
cellulosic composition that has been applied to the  
10 wrapper.

70  
70. A smoking article as defined in Claim 48,  
wherein the lower permeability areas comprise pieces  
of a fibrous web that have been placed in association  
with the wrapper.

71  
71. A smoking article as defined in Claim 56,  
15 wherein the carbon monoxide reducing agent comprises  
a ferric oxide.